

## Claims

1. A steering control apparatus which comprises target steering reaction torque generation means for generating a target steering reaction torque as a target value of a steering reaction torque to be applied to a steering wheel, and performs a control so that the steering reaction torque is coincident with the target steering reaction torque, the steering control apparatus being characterized in that

the target steering reaction torque generation means includes steering shaft reaction torque estimation means for estimating a steering shaft reaction torque, and reference road reaction torque estimation means for estimating a reference road reaction torque, and uses the steering shaft reaction torque estimated by the steering shaft reaction torque estimation means and the reference road reaction torque estimated by the reference road reaction torque estimation means to set the target steering reaction torque.

2. A steering control apparatus as set forth in claim 1, wherein the steering shaft reaction torque and the reference road reaction torque are weighted and are used for setting of the target steering reaction torque.

3. A steering control apparatus as set forth in claim 2, wherein a coefficient used for weighting of the steering shaft reaction torque and the reference road reaction torque is changed according to a vehicle speed.

4. A steering control apparatus as set forth in any one of claims 1 to 3, wherein the target steering reaction torque set by the target steering reaction torque generation means and the target steering reaction torque set by the reference road reaction torque during holding a steering wheel are used to perform weighting according to a steering angular velocity, and a new target steering reaction torque is set.

5. A steering control apparatus as set forth in any one of claims 1 to 4, wherein a steering wheel shaft coupled to a steering wheel and a wheel turning mechanism for turning a wheel are coupled to each other through a differential gear mechanism, and the steering control apparatus is characterized in that the steering shaft reaction torque estimation means uses a motor current of a steering angle motor for controlling a wheel steering angle, a steering reaction torque and a steering shaft angular acceleration to estimate the steering shaft reaction torque.